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CLAIM AMENDMENTS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of claims:

- 1-9. (canceled)
10. (previously presented) An isolated nucleic acid comprising SEQ ID NO:13, SEQ ID NO:14, and SEQ ID NO:15, which isolated nucleic acid encodes a chain of a protein that binds to CD40.
11. (previously presented) An isolated nucleic acid comprising a nucleotide sequence encoding a chain of a protein, said chain comprising SEQ ID NO:8, SEQ ID NO:9, and SEQ ID NO:10, which protein binds to CD40.
12. (previously presented) The isolated nucleic acid of claim 11 comprising a nucleotide sequence encoding a protein chain comprising (a) a heavy chain variable domain of monoclonal antibody S2C6 as secreted by the hybridoma deposited with the ATCC and assigned accession number PTA-110, and (b) a human constant region.
13. (currently amended) An isolated nucleic acid comprising a nucleotide sequence encoding a chain of a protein, said chain comprising an amino acid sequence that has at least 95% identity to SEQ ID NO:7 over the full length of SEQ ID NO:7, which protein binds competes for binding to CD40 with monoclonal antibody S2C6 as secreted by the hybridoma deposited with the ATCC and assigned accession number PTA-110.
14. (previously presented) An isolated nucleic acid comprising a nucleotide sequence encoding an antibody heavy chain, which antibody competes for binding to CD40 with monoclonal antibody S2C6 as secreted by the hybridoma deposited with the ATCC and assigned accession number PTA-110, and which antibody increases the binding of CD40 ligand to cell surface CD40 on B cells by at least 45%.
15. (original) An isolated nucleic acid comprising a nucleotide sequence encoding a fusion protein, said fusion protein comprising an amino acid sequence of bryodin 1 (BD1) fused to SEQ ID NO:7 fused to SEQ ID NO:2.
16. (currently amended) An isolated nucleic acid which hybridizes to the complement of a DNA consisting of a coding DNA sequence encoding a protein consisting of the amino acid sequence of SEQ ID NO:7, under highly stringent conditions, which isolated nucleic acid encodes a chain of a protein that binds competes for binding to CD40 with monoclonal antibody S2C6 as secreted by the hybridoma deposited with the ATCC and

assigned accession number PTA-110, and wherein said highly stringent conditions are achieved by a method comprising the steps of:

(a) prehybridizing filters containing said complement for 8 hours to overnight at 65°C in buffer composed of 6X SSC, 50 mM Tris HCl (pH 7.5), 1 mM EDTA, 0.02% PVP, 0.02% Ficoll, 0.02% BSA, and 500 µg/ml denatured salmon sperm DNA;

(b) hybridizing the filters of step (a) for 48 h at 65°C in prehybridization mixture containing 100 µg/ml denatured salmon sperm DNA and 5-20 X 10⁶ cpm of 32^P-labeled probe;

(c) washing the filters of step (b) at 37°C for 1 hour in a solution containing 2X SSC, 0.01% PVP, 0.01% Ficoll, and 0.01% BSA; and

(d) washing the filters of step (c) in 0.1X SSC at 50°C for 45 min.

17. (currently amended) A An *in vitro* recombinant cell, said cell containing a recombinant nucleic acid comprising a nucleotide sequence encoding an antibody heavy chain, which heavy chain comprises a human constant domain, and which antibody competes for binding to CD40 with monoclonal antibody S2C6 as secreted by the hybridoma deposited with the ATCC and assigned accession number PTA-110, and which antibody increases the binding of CD40 ligand to cell surface CD40 on B cells by at least 45%.

18. (currently amended) A An *in vitro* recombinant cell, said cell containing a recombinant nucleic acid encoding a protein, said protein comprising SEQ ID NO:13, SEQ ID NO:14, and SEQ ID NO:15 and further comprising a human constant domain.

19. (currently amended) A method of producing an antibody heavy chain, comprising:

(a) growing a cell in culture, said cell containing a recombinant nucleic acid encoding an antibody heavy chain, which heavy chain comprises a human constant domain, and which antibody competes for binding to CD40 with monoclonal antibody S2C6 as deposited with the ATCC and assigned accession number PTA-110, and which antibody increases the binding of CD40 ligand to cell surface CD40 on B cells by at least 45%, such that the antibody heavy chain is expressed by the cell; and

(b) recovering the expressed antibody heavy chain.

20. (currently amended) A method of producing a protein comprising:

(a) growing a cell in culture, said cell containing a recombinant nucleic acid encoding a protein comprising SEQ ID NO:8, SEQ ID NO:9, and SEQ ID NO:10 and a human constant domain, such that said protein is expressed by the

cell; and

(b) recovering the expressed protein.

21-37 (canceled)

38. (currently amended) An isolated nucleic acid comprising a nucleotide sequence encoding a chain of a protein, wherein said chain comprises SEQ ID NO:8, SEQ ID NO:9, and SEQ ID NO:10 and is a fusion protein comprising the amino acid sequence of a second protein that is not an antibody, and wherein said protein binds CD40.

39. (currently amended) An isolated nucleic acid comprising a nucleotide sequence encoding a chain of a protein, said chain comprising an amino acid sequence that has at least 95% identity to SEQ ID NO:7 over the full length of SEQ ID NO:7, which protein (a) ~~binds~~ competes for binding to CD40 with monoclonal antibody S2C6 as secreted by the hybridoma deposited with the ATCC and assigned accession number PTA-110; and (b) comprises a human immunoglobulin constant domain.

40. (currently amended) An isolated nucleic acid comprising a nucleotide sequence encoding a chain of a protein, said chain comprising an amino acid sequence that comprises regions having at least 80% identity to SEQ ID NO:8, SEQ ID NO:9 and SEQ ID NO:10, respectively, over the full length of SEQ ID NO:8, SEQ ID NO:9 and SEQ ID NO:10, respectively, which protein (a) ~~binds~~ competes for binding to CD40 with monoclonal antibody S2C6 as secreted by the hybridoma deposited with the ATCC and assigned accession number PTA-110; and (b) comprises a human immunoglobulin constant domain.

41. (previously presented) The isolated nucleic acid of claim 40, wherein the chain comprises at least 2 CDR sequences selected from the group consisting of SEQ ID NO:8, SEQ ID NO:9 and SEQ ID NO 10.

42. (currently amended) An isolated nucleic acid comprising a nucleotide sequence encoding an antibody heavy chain, which antibody (a) ~~binds~~ competes for binding to CD40 with monoclonal antibody S2C6 as secreted by the hybridoma deposited with the ATCC and assigned accession number PTA-110; (b) increases the binding of CD40 ligand to cell surface CD40 on B cells by at least 45%; and (c) comprises a human immunoglobulin constant domain.

43. (previously presented) An isolated nucleic acid comprising a nucleotide sequence encoding a chain of a protein, which protein competes for binding to CD40 with monoclonal antibody S2C6 as secreted by the hybridoma deposited with the ATCC and assigned accession number PTA-110 and comprises a human immunoglobulin constant

domain, and which chain comprises at least 2 CDR sequences selected from the group consisting of SEQ ID NO:8, SEQ ID NO:9 and SEQ ID NO 10.

44. (previously presented) The isolated nucleic acid of claim 43, wherein the ~~protein~~ chain comprises SEQ ID NO:8 and SEQ ID NO:10.

45. (canceled)

46. (previously presented) The isolated nucleic acid of any of claims 39-41, 43 and 44 , wherein the protein is an antibody.

47. (previously presented) The isolated nucleic acid of claim 46, wherein the antibody is a chimeric antibody.

48. (previously presented) The isolated nucleic acid of claim 46, wherein the antibody is a humanized antibody.

49. (canceled)

50. (previously presented) The isolated nucleic acid of claim 38, wherein the chain comprises SEQ ID NO:7.

51. (previously presented) The isolated nucleic acid of claim 38 or 50, wherein the chain further comprises SEQ ID NO:2.

52. (previously presented) The isolated nucleic acid of claim 14 or 42, wherein the antibody increases the binding of CD40 ligand to cell surface CD40 on B cells by at least 50%.

53. (previously presented) The isolated nucleic acid of claim 14 or 42, wherein the antibody increases the binding of CD40 ligand to cell surface CD40 on B cells by at least 60%.

54. (previously presented) The isolated nucleic acid of claim 14 or 42, wherein the antibody increases the binding of CD40 ligand to cell surface CD40 on B cells by at least 65%.

55. (previously presented) The isolated nucleic acid of claim 10, 11, 13, 16, 38, 39, 40 or 43, wherein the protein increases the binding of CD40 ligand to cell surface CD40 on B cells by at least 45%.

56. (previously presented) The isolated nucleic acid of claim 10, 11, 13, 16, 38, 39, 40 or 43, wherein the protein increases the binding of CD40 ligand to cell surface CD40 on B cells by at least 50%.

57. (previously presented) The isolated nucleic acid of claim 10, 11, 13, 16, 38, 39, 40 or 43, wherein the protein increases the binding of CD40 ligand to cell surface CD40 on B cells by at least 60%.

58. (previously presented) The isolated nucleic acid of claim 10, 11, 13, 16, 38, 39, 40 or 43, wherein the protein increases the binding of CD40 ligand to cell surface CD40 on B cells by at least 65%.

59. (previously presented) The isolated nucleic acid of claim 10 which comprises SEQ ID NO:6.

60. (previously presented) The isolated nucleic acid of claim 11, wherein the ~~protein~~ chain comprises SEQ ID NO:7.

61. (previously presented) The recombinant cell of claim 18, wherein the recombinant nucleic acid comprises SEQ ID NO:6.

62. (previously presented) The method of claim 20, wherein the recombinant nucleic acid encodes SEQ ID NO:7.

63. (previously presented) The nucleic acid of claim 38, wherein the second protein is a toxin or enzyme.